

Population Notes: The Basics

2.1.6 Define the term population -

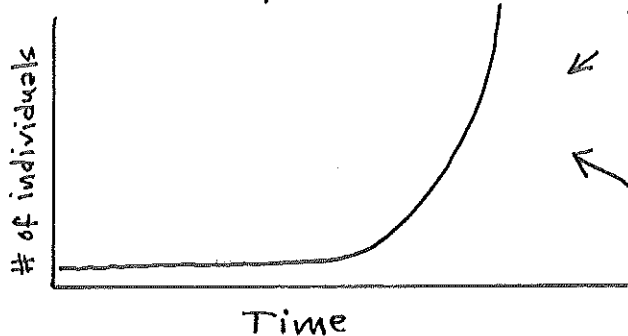
group of the same species in an area.
ex. all the duckweed in Duck Lake

2.6.2 Describe and explain S and J population curves.

2.6.1 Explain the concepts of limiting factors and carrying capacity in the context of population growth.

2.6.4 Describe the principles associated with survivorship curves including K- and r-strategists.

• J-curves (aka Exponential growth)

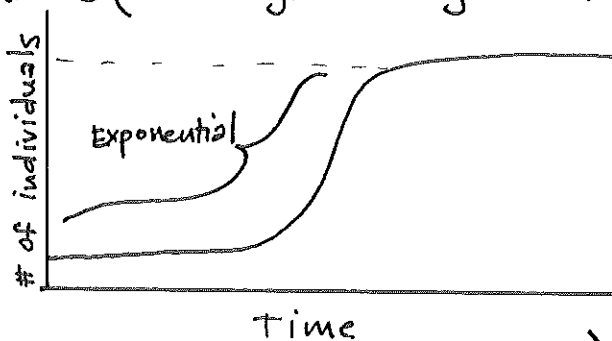


pop. grows exponentially
mostly seen in
bacterial growth

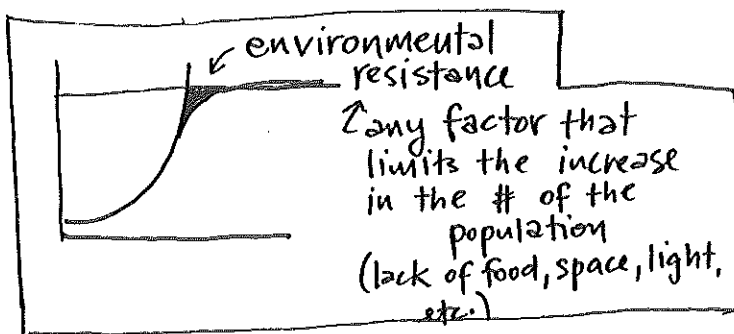
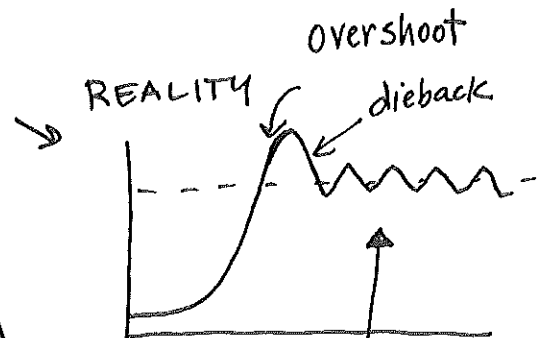
2
↓
4
↓
8
↓
16 etc.

← No factors limit growth

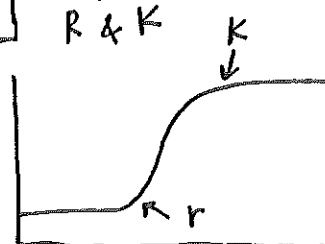
• S-curves (aka Logistical growth)



population growth slows down
when it hits
CARRYING CAPACITY

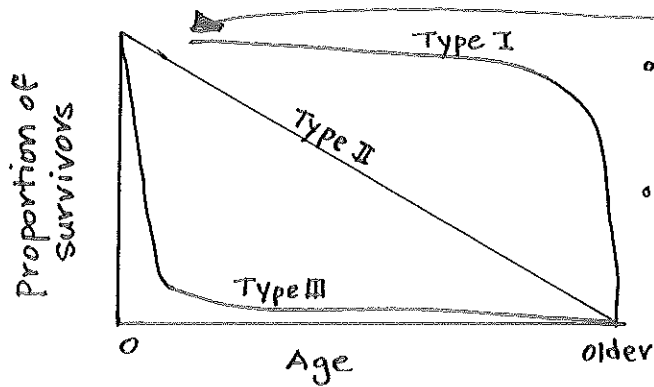


why?
Limiting Factors
(see next page of
notes for
more)



(see next page for more
on this)

2.6.4 Describe the principles associated with survivorship curves including K- and r-strategists.



- Type I - Typically K organisms
Bc. of parental care → few die young (ex. Bears)
- Type II - Organisms have an equal chance of dying whether they are young or old. RARE. (ex. Hydra)
- Type III - Typically r organisms
Lots die at a young age (ex. Cane Toads)

Review of r & K Strategists

r: short-life
rapid growth
early maturity
lots of offspring
no parental care
* adapted to unstable enviro.
* generalists
prey
Reg. by external factors

low trophic level

less likely to become extinct

K: long-life
slow growing
late maturity
few large offspring
high parental care
* adapt. to stable enviro.
* late stage of succession
* specialist predators

regulated by internal factors
high trophic level

2.6.3 Describe the role of density-dependent and density-independent factors and internal and external factors in the regulation of a population.

EXAMPLES				
Dependent Factors	Internal Factors	• act within a population. • limited food, space, mates	deer compete for food & some may die	Biotic Factors * Act As
Density Limiting	External Factors	• act with a community • predation, disease	Birds of diff. spp. compete for same species.	NEGATIVE FEEDBACK mechanisms → stabilize ecosystems
Independent Factors		• not related to pop. density. • weather, climate, volcanic eruptions, floods	Long-term climate change changes resources available.	ABIOTIC FACTORS * NOT part of a feedback system.
Density Limiting				